

# WATER QUALITY MEMORANDUM

Utah Coal Regulatory Program

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December 8, 2009

TO: Internal File

THRU: James D. Smith, Permit Supervisor *JS 10/12/09*

FROM: Kevin W. Lundmark, Environmental Scientist II *KWL*

SUBJECT: 2007 Fourth Quarter Water Monitoring, Andalex Resources, Centennial Mine, C/007/0019, WQ07-4, Task ID #3220

The Centennial Mine is currently in temporary cessation. No mining or coal processing activities currently take place there, nor is the site in active reclamation. The Permittee (Andalex Resources) is required to continue with the requirements for water monitoring up until bond release in accordance with R645.731.214.

This report is being prepared retroactively and all water monitoring requirements are listed herein are under the previously-approved plan. The new water monitoring plan has been in effect since March 26, 2009. Sections 711.300 pages 7-2 through 7-10 and Appendix L of the MRP pertain to water monitoring. Water sampling locations are shown on Figure IV-11.

## 1. Were data submitted for all of the MRP required sites?

### Springs

YES ☒ NO ☐

Six of the spring sample sites were monitored during this quarter. Only two sites yielded flow, B-351 (undeveloped spring below stock pond) and S18-1.

### Streams

YES ☒ NO ☐

Flow was reported in 2 out of the 12 stream monitoring sites: Left Fork of Deadman Wash (18-3) and Summit Creek (SC-1). All the remaining sites reported no flow conditions.

### Wells

YES ☒ NO ☐

Well #1 was reported as dry to pump elevation.

### UPDES

YES ☒ NO ☐

All UPDES locations were monitored monthly in accordance with the permit. The only location that discharged was the Aberdeen Mine Discharge outfall (D004).

**Pond**

YES ☒ NO ☐

The stock watering pond, 31-1 sampling location was reported as not flowing during third quarter 2007.

**2. Were all required parameters reported for each site?**

**Springs**

YES ☐ NO ☒

Total hardness was not reported for spring B-351 (undeveloped spring below stock pond). Hardness may be calculated from the dissolved calcium and dissolved magnesium concentrations by the following equation:

$$\text{Hardness, mg equiv/L CaCO}_3 = ([\text{Ca,mg/l}] * 2.497) + ([\text{Mg,mg.l}] * 4.116)$$

The reported concentrations of dissolved calcium (55.8 mg/L) and dissolved magnesium (27.1 mg/L) correspond to a hardness of 251 mg/L. The water quality database has been updated with this value.

**Streams**

YES ☒ NO ☐

**Well**

YES ☐ NO ☐

Not applicable this quarter.

**UPDES**

YES ☒ NO ☐

**Pond**

YES ☐ NO ☐

Not applicable this quarter.

**3. Were any irregularities found in the data?**

**Springs**

YES ☐ NO ☒

Dissolved calcium and alkalinity were lower than average and dissolved potassium was higher than average in the sample from location B351. The cation-anion balance for this sample was acceptable.

**Streams**

YES ☒ NO ☐

Flow at location 18-3 measured October 11, 2007 was 1,257 gallons per minute. The sampler reported that this was mine discharge water.

**Wells**

YES ☐ NO ☐

Not applicable this quarter.

**UPDES**

YES ☐ NO ☒

Flow at location D004 was reported as 1,122 gallons per minute on November 12, 2007 and 987 gallons per minute on December 4, 2007. The reasons for the elevated discharge were reported as greater than normal discharge from the mine.

Total iron concentrations at location D004 exceed the UPDES discharge limitation of 1.0 mg/L in the sample collected December 4, 2007 (3.87 mg/L). As this report was prepared retroactively and discharge from the mine ceased when mining operations ceased, additional action does not appear warranted for the elevated iron concentrations.

Location D004 had TDS of 1,553 to 1,600 mg/L during 4<sup>th</sup> quarter 2007, which exceed the discharge limitation of 500 mg/L average 30-day TDS. The UPDES permit provides an alternate limitation of 1 ton (2,000 pounds) per day TDS loading as a sum from all outfalls if the 30-day average of 500 mg/L cannot be met. TDS loading calculated from flow and TDS measurements during fourth quarter 2007 were 5.1 to 11 tons per day at location 004. The measured TDS at location 004 are below the Site Specific Standard for TDS for the Price River and tributaries from the confluence of Coal Creek to Carbon Canal Diversion (1,700 mg/L, UAC R317-2-14). As this report was prepared retroactively and discharge from the mine ceased when mining operations ceased, additional action does not appear warranted for the elevated TDS.

**4. Did the Permittee make a timely submittal of all data, including initially missing data, and satisfactorily explain irregular data?**

YES ☒ NO ☐

**5. Does the Mine Permittee need to submit more information to fulfill this quarter's monitoring requirements?**

YES ☐ NO ☒

**6. Based on your review, what further actions, if any, do you recommend?**

None.

**7. Follow-up from last quarter, if necessary.**

None, report was prepared retroactively.

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